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ABSTRACT

This study investigates the behavior of university students in Singapore regarding (1) the extent and manner in which they study together outside of class and (2) their perceptions of the quality and value of out-of-class academic collaboration (OCAC). Undergraduates (n=457) from four different campuses of the National University of Singapore participated. Data were collected via a questionnaire that asked about such areas as places in which students did OCAC, frequency of OCAC, purposes of OCAC, size of OCAC groups, choice of OCAC groupmates, perceived advantages and disadvantages of QCAC, and conditions for promoting successful OCAC. Based on the theoretical literature on learning, the small amount of research on OCAC, and researchers' experiences as teachers and learners at a wide variety of institutions around the world, OCAC is viewed as valuable and should be encouraged. This study is regarded as a logical and necessary first step--the collection of descriptive data on the current state of OCAC. The survey instrument is appended. Numerous tables and charts are included. (Contains 19 references.) (Author/KFT)

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Student-Initiated, Out-Of-Class Academic Collaboration among Students at a Singapore University

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Abstract

Students can study together not only in the classroom but outside the classroom as well. This article reports an investigation of the behavior of university students in Singapore in regards to the extent and manner in which of their own initiative they study together outside of class and the students' perceptions of out-of-class academic collaboration (OCAC). Participants in the descriptive study were 457 undergraduates at the National University of Singapore from four different faculties at the university. Data were collected via a questionnaire that asked about such areas as places in which students did OCAC, frequency of OCAC, purposes of OCAC, size of OCAC groups, choice of OCAC groupmates, perceived advantages and disadvantages of OCAC, and conditions for promoting successful OCAC. Suggestions are made for future research, and for increasing and enhancing the use of OCAC.

A large body of research suggests that classroom collaboration among students is

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associated with enhanced outcomes on a number of variables, such as achievement, thinking skills, interethnic relations, liking for school, and self-esteem (for reviews of this research, see Bossert, 1988-1989; Cohen, 1994; Johnson & Johnson, 1989; Sharan, 1980; Slavin, 1995). The concept of collaboration among learners has many roots, but cognitive psychology represents a key inspiration. Cognitive psychologists prioritize the role of learners rather than teachers and materials. Students are seen as active constructors of their own knowledge not empty vessels to be filled with knowledge (Brown, Collins, & Duguid, 1989; Bruner, 1966). Teachers working from cognitive perspectives attempt to facilitate their students' learning because these teachers understand they cannot control their students' learning. In reference to university education, Palmer (1998:6) states this concept in the following way:

> I have no question that students who learn, not professors who perform, is what teaching is all about. ... Teachers possess the power to create conditions that can help students learn a great deal--or keep them from learning much at all. Teaching is the intentional act of creating those conditions.

Students collaborate not just inside the classroom but outside the classroom as well. Bloom (1984) and Walberg (1984) highlight this out-of class academic collaboration (OCAC) as a key factor in academic success. A small body of existing research supports the contention that OCAC can help students become more successful academically. This research involved such diverse participants as disabled tertiary students (Finn, 1997), non-disabled primary and secondary school students who form peer support groups with disabled students (Cushing & Kennedy 1997), and entering

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tertiary level students (Ignash, 1993).

In another example of OCAC, Sokolove conducted an investigation in which after US university students had completed a biology examination he asked them to indicate whether or not they had studied for the exam alone or with other students. Those who indicated that they had studied together outperformed those who said they had studied alone to a statistically significant extent. In yet another example of OCAC, while teaching at a US university, Treisman (1983) observed that the isolation of students of certain minority ethnic groups hindered their academic success leading to relatively lower grades and lower graduation rates. He noted that, in contrast, informal study groups seemed to be common among students from the majority ethnic group. These OCAC groups appeared to help their members learn and become better integrated into academic life at the university. From this observation, Treisman worked to establish a programme to help minority students, one component of which was the setting up of OCAC groups. The programme led to higher grades and enhanced graduation prospects for participants.

OCAC might be divided into three types: that initiated by students, that required by teachers, and that sponsored by institutions. The Sokolove study represents a case of student-initiated (SI) OCAC. In another example of SI OCAC, in Thailand, George (1999) discovered that her graduate students took their own initiative to create what she termed "homework cartels" that met regularly to do homework together. When a teacher assigns students to work in groups to complete a project, that would constitute a case of teacher-required OCAC. The kind of programme that Treisman helped to establish offers an example of institutionally-sponsored OCAC. This paper focuses on student-initiated

(SI) OCAC. Here students take the initiative themselves (without prompting or requirement by teachers) to form groups to work outside their class times. Students-initiated OCAC may, of course, come about as a result of prior experience with teacher-required or institutionally-sponsored OCAC - motivated perhaps by new friendships or feeling of belonging to the group.

Based on the theoretical literature on learning, the small amount of research on OCAC, and our own experiences as learners and teachers at a wide variety of institutions in a number of countries, we believe that OCAC is of value and should be encouraged. However, before one can encourage a phenomenon, it is first necessary to collect descriptive data on the current state of that phenomenon. The collection and analysis of such date was the main purpose of the present study. This study focused only on SI OCAC. By studying SI OCAC, we hoped to also gain insight into how to organise other types of OCAC, as well as in-class collaboration.

Method

Research Questions

We hoped to gain insight into the following questions:

1. How widespread is SI OCAC?
2. Under what circumstances do students most often engage in OCAC? Why do students engage in OCAC?
3. How long do their OCAC study sessions commonly last? Whom do students choose as their OCAC group mates? How big are their groups?

4. What do students perceive as the advantages and disadvantages of OCAC?
5. What do students perceive as key elements of successful OCAC?

Participants

The study was done at the National University of Singapore (NUS), located in the Republic of Singapore. The university is composed of ten faculties (e.g., Faculty of Law) and has approximately 19,000 undergraduate and 8,000 graduate students. The overwhelming majority of NUS students are Singaporean, however, the percentage of foreign students is increasing. The four largest ethnic groups in Singapore, in descending order of size, are Chinese, Malay, Indian, and Eurasian. A total of 457 undergraduate students participated in the study. They were from four faculties: Computer Science, Arts and Social Sciences, Business, and Engineering. The demographic breakdown of participants is shown in Table 1.

Table 1

Breakdown of Participants in Percentages by Faculty, Sex, Year, and Ethnic Group

	First year	Second year	Third year	Totals	Female	Male
Computer Science	6	10	0	16	5	12
Arts & Social Sciences	22	1	7	30	26	4
Engineering	0	32	0	32	7	24
Business	12	9	0	21	14	8
Total	41	52	7	100	52	48
Female	30	17	5	52		

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Male	11	35	2	48		
Totals	41	51	8	100	Female	Male
Chinese	38	49	7	93	49	45
Indian	2	2	0	4	2	3
Malay	½	1	0	1	1	1
Eurasian & Other	0	0	1	1	1	½
	Computing	Business	ASS	Engineer	Total	
Chinese	16	20	27	30	93	
Indian	1	1	1	2	4	
Malay	0	0	1	0	1	
Eurasian & Other	0	0	1	0	1	

Most percentages are rounded to cents. Less than 1% is rounded to ½ %.

Data Collection and Analysis

Questionnaire design and dissemination. A student questionnaire was designed, pilot tested and rewritten. The pilot testing sought to determine whether the items were clear and whether it was reasonable to expect participants to complete the questionnaire within ten minutes, the maximum time that we anticipated could be spared from course time. (See the Appendix for the final version of the questionnaire.) Questionnaires were completed in the classes of those members of the research team who taught at NUS.

Coding. Not all students completed all the items, and sometimes their writing was not sufficiently legible to include in the data analysis. Most of the questionnaire items

were close-ended. However, three items were open-ended: items 2, 7, and 8. These were coded into quantitative format. Inter-rater agreement was calculated for the coding of each of the open-ended items. The first (Item 2) asked about where students studied together. Responses were grouped into 10 categories. Inter-rater agreement was 100%. Items 7a and 7b asked about advantages and disadvantages of OCAC groups, respectively. Responses were coded into 10 and 12 categories, respectively with levels of inter-rater agreement at 96% and 98%. Finally, Item 8 asked what members needed to do for an OCAC group to be successful. Responses were coded into 10 categories with a 91% level of inter-rater agreement.

Results

This section presents the main results from the questionnaire data. Findings are reported as rounded percentages.

Place

Item 2 asked students to name the one place where they usually did their OCAC. Table 2 presents the students responses. By far the most popular place chosen was what are called "study benches". These are large tables with benches fixed on either side. The benches are rudimentary but functional, allowing up to about eight people to work - and also eat. They are placed along almost all the outside corridors at the university, often at points of considerable traffic between classes. The second most popular place was the library.

Table 2

Place Where Students Most Frequently Met for OCAC

Place	%
Study bench	47
Library	20
Tutorial/Seminar room	8
Discussion / Reading Room	6
Hostel	4
Someone's room	4
Other	4
Canteen	3
Fast Food Restaurant	2
Computer Lab	1

Purpose of OCAC

Item 3 in the questionnaire asked about the frequency with which students engaged in SI OCAC for various purposes. These data are displayed in Table 3. The least popular activity for SI OCAC was to review a lecture. When students met for OCAC they worked mostly on tutorials and projects. During exam time, almost the only purpose was to revise together.

Table 3

Purposes and Frequencies of SI OCAC

	Review lecture	Prepare tutorial	Work on project	Revise exam	Other
Daily	0	1	1	8	2
Often	2	16	26	24	2
Occasionally	17	35	35	20	8
Seldom	26	21	18	22	2
Never	54	27	19	25	87

NB **Seldom** (once a month or less) **Occasionally** (once a week or less) **Often** (several times a week)

Session Duration

Item 4 of the questionnaire asked students about the duration of one OCAC session or "sitting" (a single, uninterrupted stretch of time during which they studied together outside of class). This was subdivided into two types of sittings. Students reported that the average length of an OCAC sitting was:

- In an SI study group (during term time): 1.6 hours (sd 2.6).
- In an SI study group (during exam time): 3.1 hours (sd 3.2).

Groupmates

Item 5 concerned the kinds of people whom students choose as groupmates in their SI OCAC. Table 4 presents their reported criteria. The top two criteria are "friends" and "same module or tutorial group (class)".

Table 4

Criteria for Choosing SI OCAC Groupmates

Criteria	%
My friends	81
From the same module / tutorial group	76
Of the same sex	36
From the same ethnic group	32
Have same ability as or higher than me	32
From same hostel	13
From the same ECA group	10

Group Size

Item 6 dealt with the usual size of OCAC groups. The mean size was 3.8 (sd 1.1).

Table 5 shows the percentage of respondents indicating various group sizes.

Table 5

Group Size for OCAC

Group size	%
2	15
3	36
4	29
5	11
6	6
7	1
8	2

Benefits of OCAC

Item 7a asked about the benefits of OCAC. Responses are presented in Table 6. The greatest advantage that students saw in OCAC was "better understanding", which included "more learning, recall through discussion and equal learning via collaboration".

Table 6

Reported Benefits of OCAC

Benefit	%
better understanding	74
more ideas & viewpoints	50
motivates	42

combine abilities	36
social	25
affective	21
lightens workload	19
facilitates comparison	4
enhances communication skill	2
easier to meet lecturers	1/2

Percentage total sums to more than 100 because each respondent indicated up to 3 benefits.

Better understanding, more learning, and recall through discussion, equal learning via collaboration.

More ideas, information, and points of view.

Motivates - pushed to study, peer pressure.

Combine abilities - helping and learning from each other, disparity.

Social - builds relationships, get to know others, provide companionship.

Affective - more enjoyable, interesting, relaxed, confident; less stressful.

Lightens workload - more efficient, helps those who miss class.

Facilitates comparison with other students - how they study, what they understand - healthy competition.

Enhances communication skill - learn to co-operate.

Easier to meet with lecturers: because can go as a group or as representative of a group.

Drawbacks

Item 7b asked about what participants saw as disadvantages of OCAC. Responses are presented in Table 7.

Table 7

Reported Disadvantages of OCAC

Disadvantage	%
Waste of time - off point, inefficient, socialising, unsystematic, distracting	51
Deficient group members [either self or others] - copying, relying on others, freeloading, coming late, coming unprepared, bad influence	10
Incompatibility among group members in terms of study pace, schedules, ability level, knowledge level, study habits, study topics, place [focus on group]	12
Noisy, cannot concentrate	5
Disagreements, competition, rivalry	8
Place - hard to find place to study, must travel to the place, extra time & money	4
Having better group mates creates stress	2
Helping others takes away from one's own learning, others' questions come before mine, less freedom because have to suit to others. [focus on individual]	5
Blind leading the blind	2

Conditions for Success

Item 8 asked students for their views on the conditions they considered necessary for OCAC groups to be successful. The three key conditions mentioned by participants dealt with the conduct of the members of the OCAC groups in regard to whether they came prepared, behaved in an on-task manner during OCAC sessions, and were willing to cooperate with one another. Students' ideas are presented in Table 8.

Table 8

Conditions for Successful OCAC

Condition	%
Be disciplined during meetings	23
Prepare, be punctual, do what group assigns, and rely of self not just group	16
Have a mix of strengths among the group members	1
Have some enjoyment - make themselves comfortable, have a treat afterwards, take breaks	1
Know each other, like each other, trust each other, respect each other, feel comfortable with each other, care about each other	6
Be encouraging, enthusiastic, kind, friendly, patient, not pressurising	7
Help each other, share, ask questions, discuss, let everyone participate, have a co-operative attitude	31
Determine what, how, and when to study and be sure all should be clear on this	4
Have members with same ability level, study style, objectives, courses being taken	3
State views frankly, be willing to compromise, be open to ideas, try to understand what others are saying, be tolerant, be considerate	7

Discussion

Limitations and Suggestions For Future Research

The generalizability of this study is limited to the four faculties at NUS in which data were collected and to the 1998-1999 academic year in which the data collection was done and the method by which it was done. Future research should employ additional means of data gathering, such as:

1. asking students to write journal entries of OCAC,
2. observing and/or taping OCAC sessions,
3. interviewing students, teachers, caregivers, administrators, and other stakeholders about OCAC
4. comparing achievement of students who did and did not engage in OCAC.

Two studies of OCAC also done in Singapore used some of the data collection ideas in points 2 and 3 above (Jacobs, Hussein, & Fazilah, forthcoming; Lopez-Nerney, Meyer, Norhayati, Toh, Wu, Teng, Crookall, & Jacobs, forthcoming).

Suggestions For Encouraging OCAC

From this research, a number of recommendations can be made. Our recommendations fall into X broad categories:

Environment. To make the environment conducive to OCAC, the following are suggested:

1. Small OCAC rooms be spread across the campus.
2. General facilities (libraries, computer labs) have OCAC rooms.
3. OCAC rooms have basic facilities (spare paper, white board, computer connection, good lighting, comfortable chairs).

Preparation. Students appear to need preparation in order to do OCAC more effectively. Suggestions for facilitating this preparation are:

1. Short courses in which students and teachers learning about OCAC. Here, the literature on cooperative learning (Johnson & Johnson, 1994) will be useful.
2. OCAC counselors who help develop OCAC skills and match students looking for OCAC partners.
3. Small pamphlets about OCAC.
4. Discussion of OCAC during class time.

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Appendix

Questionnaire

We are a group of lecturers from NUS and Regional Language Centre (RELC) who are conducting a study about student collaboration, i.e. the way students study together outside their classes for academic purposes.

PLEASE DO NOT WRITE YOUR NAME ON THIS QUESTIONNAIRE. You can be assured that all information you provide will remain strictly confidential. Your answers will in no way affect your grades or standing in class. We would appreciate your responding to the questions below honestly and completely.

Please go through the questions quickly and answer spontaneously, i.e. put down what comes to your mind first after reading the question - that is the most accurate answer.

Background Data

Sex: ( ) Female ( ) Male
Faculty: _____
Year: ( )1 ( ) 2
Ethnic Group: ( ) Chinese ( ) Indian ( ) Malay
( ) Eurasian Others (Please specify)

_____

1. Do you study together with other students outside of class, i.e. collaborate with other students for academic purposes related to any course?

( ) Yes (Please proceed to Q2 below.)

( ) No (Please proceed to Q7b.)

2. When you study together with other students outside of class, **where** do you usually meet? Name **one** place (eg. at a study bench on campus, at someone's home).

_____

3. What is the **frequency** with which you do the following together with fellow students? Tick the appropriate boxes in the tables below.

	Never	Seldom (once a month or less)	Occasionally (once a week or less)	Often (several times a week)	Daily (during school days)
Review a lecture					
Prepare for a tutorial					
Work on a project/assignment					
Revise for a coming examination					

Other (please specify):					

4. About **how long**, at any one time, do you usually study together with other students outside of class:

   a. In a student-initiated study group (during term time)? ___ hours

   b. In a student-initiated study group (during exam time)? ___ hours

5. When you choose your own group members, **who** do you study together with outside of class? (Tick as many as applicable.)

   ( ) Usually students from the same module / tutorial group

   ( ) Usually students of the same sex

   ( ) Usually students from the same ethnic group

   ( ) Usually students from the same ECA group

   ( ) Usually students who have same ability as or higher than you

   ( ) Usually students from the same hostel

   ( ) Usually students who are your friends

   ( ) Others: (Please specify.)_____

6. What is the usual **size** of the group (including yourself) which you study with?

   _____

7. a. What do you see as the **advantages** of studying together in a group? (Name three.)

   1.

   2.

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3.

b. What do you see as the **disadvantages** of studying together in a group? (Name three.)

1.

2.

3.

8. For a study group to be **successful**, members should:

1.

2.

3.

Thank you very much for helping us in this important research.
We appreciate your cooperation and time.